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DISEASES OF THE CHEST

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Editorial Comment

A New Format In accordance with a resolution adopted by the Board of Regents of the American College of Chest Physicians, *Diseases of the Chest* will change its format to comply with the style used by most of the medical specialty journals published in this country. This change will become effective with the January, 1943, issue of the journal.

The number of pages will be materially increased and a greater number of illustrations will be published in connection with the scientific articles which are to appear in the journal.

In accord with a popular demand by the 1200 members of the College, only the highest type of scientific papers dealing with the subject of diseases of the chest will be accepted for publication. While papers dealing with tuberculosis will receive a prominent place in the journal, an increased amount of space will be given to papers concerning non-tuberculous chest conditions.

A section of the journal will be given over to abstracts of articles from this and other countries dealing with diseases of the chest. Another section of the journal will contain book reviews and reviews of current literature. A greater amount of space will be accorded to organization news and to the activities of the members of the College.

Summaries of the papers published in the journal will be translated into the Spanish language and printed at the end of each article. The activities of our members in the Pan-American countries will receive a prominent place in the organization news columns of the journal.

Proceedings of the annual meetings of the College will be published in the journal and the activities of state and district chapters of the College will receive greater prominence in the enlarged publication.

A special section of the journal will be concerned with military medicine as it applies to diseases of the chest. This section will be supervised by the Council on Military Affairs of the College, and the latest information on military medicine will be published as soon as it is available. Members of the College who are serving in the armed forces of our country will receive special mention in the journal and an up-to-date directory of these members will be published whenever it is compatible to the best interests of our country that we do so.

Articles dealing with undergraduate and postgraduate teaching of diseases of the chest will be featured from time to time by the Councils on Undergraduate and Postgraduate Medical Education of the College.

Symposia dealing with timely subjects concerned with diseases of the chest will appear in special issues of the journal. The January, 1943, issue, which is to be the first issue of this revised journal, will contain a "Symposium on Bronchiectasis." This issue is being compiled under the direction of Dr. Paul H. Holinger, Chicago, and the following papers will be published in this special issue of the journal:

"Bronchiectasis as a Pediatrician Sees It"
Joseph Brennemann, M.D., Los Angeles, Calif.

"Bronchoscopy in Bronchiectasis"
Louis H. Clerf, M.D., Philadelphia, Pa.

"Otolaryngological Aspects of Bronchiectasis"
Francis L. Lederer, M.D., Chicago, Ill.

"Roentgen Aspects of Bronchiectasis"
William E. Anspach, M.D., Chicago, Ill.

"Surgical Aspects of Bronchiectasis"
Alton A. Ochsner, M.D., *and* Michael DeBakey, M.D., New Orleans, Louisiana

"Medical and Pathological Aspects of Bronchiectasis"
H. M. Riggins, M.D., New York, N. Y.

The Editorial Board of *Diseases of the Chest* welcomes suggestions from the members of the College and from the other readers of the journal. With your assistance and cooperation we will try and give you the type of journal you expect to receive and read.

R. C. M.

President's Address*

J. WINTHROP PEABODY, M.D., F.A.C.P.
Washington, D. C.

Fellows of the College, Ladies and Gentlemen: If democracy is to survive the present crisis of total warfare in which virtually the entire civilized world is engaged, it is incumbent upon each of us to assume his separate share in the united endeavor to insure the perpetuation of the fundamental principles of individualism which our own particular form of government so admirably exemplifies, as opposed to the totalitarianism of dictators. The era of peace which is to succeed the conflict between these irreconcilable political philosophies will inevitably impose added duties and obligations to others as well as to ourselves which will necessarily have to be accepted and discharged under radically altered conditions. Accordingly, the purpose of this address is to define the attitude of the College toward the current exigencies created by the emergency, and to indicate its policy with respect to the reciprocal relations established in consequence of the spirit of amity among allied nations engendered by participation in a common cause.

Since it is now universally recognized that the effort to win the war is of paramount importance and transcends every other consideration, the College pledges its wholehearted cooperation as an organization with the military and naval authorities in all matters involving the defense of our country and the welfare of its armed forces on land and sea. As part of its program in this connection, the College is prepared: (1) To supply from its roster of members the names and professional qualifications of physicians competent to act as officers in the respective medical corps of the several branches, and to aid in the procurement and subsequent assignment of these physicians for service either with armed forces or civilian populations. (2) To collaborate with medical officers of the army and navy in the examination of recruits, with particular reference to radiography of the chest; and with public health officials in the rehabilitation of applicants rejected on account of the condition of their chest. (3) To render all possible assistance to those of its members who are already enrolled in the armed services. (4) To foster and maintain the highest of standards for the practice of the specialty of diseases of the chest among civilian populations and in the armed forces of our country. In this respect the College has established for the first time an examining board, the function of which will be to examine all candidates for fellowship.

Obviously there are many medical problems whose solution must perforce be deferred until the end of the war, primarily for the reason that the data essential for their elucidation are still unavailable, and probably will remain so long after the cessation of hostilities. However, it is believed that tuberculosis

*Presented before the Eighth Annual Meeting of the American College of Chest Physicians, Atlantic City, N. J., June 6, 1942.

can safely be excluded from this category. Our vastly superior knowledge of that disease as compared to other affections should of itself alone warrant the exception. Furthermore, our experience with tuberculosis during and since the first World War should afford valuable criteria in the establishment of a rational procedure for the systematic elimination of prospective inductees who reveal evidence of disease of the chest which might be aggravated by military service, and ultimately entail partial or total physical disability with a claim for compensation.

Infection and environment represent two cardinal factors in the occurrence of tuberculosis. Hitherto the tendency has been to regard these factors as separate and distinct, but of late it has become increasingly apparent that they should be considered together. Indeed, infection itself is quite definitely an environmental factor, and if it be present, then the other environmental factors, including poverty, overcrowding in unsanitary habitations, and malnutrition, must be corrected or controlled in order to avoid wholesale infection of a group or a community. Moreover, among predisposing influences particular emphasis should be laid also upon the abnormal conditions of existence and of labor which prevail in wartime.

Mass radioscopy of employees in factories where a greatly increased personnel incident to the war had occasioned extreme congestion has been advocated and practiced abroad, notably in Great Britain, and might well be instituted by large employers of labor in our own country. The significance of this innovation will be realized when it is recalled that the majority of the individuals so examined were either in their teens or their early twenties, ages at which the incidence of tuberculosis is relatively high. Another marked advantage of the procedure in question consists in the opportunity for the discovery of patients in the incipient stage of the disease, before they have been permitted to become a source of infection to those around them.

Non-industrial civilian hazards involved in the lack of food, close contact for protracted periods in dark, badly ventilated bombproof shelters, enforced migration, and other similar vicissitudes of war, all render their victims more susceptible to tuberculous infection.

Therefore, may we repeat that while our primary objective is to do our part to win the war by the conservation of the health and efficiency of our armed forces, our grave responsibility toward the noncombatant population should meanwhile not be ignored. Actually there is more than ever before an urgent need for a carefully planned and intelligently conducted campaign for the detection of tuberculosis, especially among young persons still at school or about to enter industry or the public or national services of our country.

As its own particular contribution to this campaign, during the forthcoming year the College proposes to continue with undiminished energy the important work thus far accomplished under the able leadership of Doctor Edward William Hayes for the education of undergraduates in the subject of diseases of the chest. Postgraduate instruction will be imparted through the medium of the annual meetings of the College and the meetings of its district and state chapters. Scientific programs of a high character will be offered at all these assemblies. For instance, this year a joint session will be held with the American Broncho-Esophagological Association. The College hopes to arrange joint sessions with other groups associated with our specialty and other related intrathoracic conditions.

Within the past year a number of new state and district chapters of the College have been organized and established. It is our intention to complete the organization of chapters in those states and districts in which there are a sufficient number of individuals eligible for membership to form chapters. A plan to provide for the interchange of delegates between the several chapters of the College is under consideration. A special section of our annual program is to be assigned to past and present officers of state and district chapters for the exchange of ideas and suggestions likely to prove of assistance to members of all the chapters.

The promotion of the activities of the National Council of Committees on Tuberculosis will also be continued during the present year. Reports reveal the fact that committees which represent state and in many instances county medical societies have already been formed in no less than thirty-five states. The

Council is resolved to encourage the organization of committees on tuberculosis in those states which have not as yet appointed such committees, and to induce other states to establish committees on tuberculosis in their county medical societies. The Council will likewise sponsor a uniform method of procedure for utilization in the prevention and treatment of tuberculosis by each of the state and county committees where applicable. The members of these committees on tuberculosis will be invited to attend the state and district meetings as well as the annual meeting of the College, in order that a larger number of physicians may be included in our educational program.

At this annual meeting we have adopted a new constitution and set of by-laws, which were drafted by members of the committee appointed for the purpose, with the aid and counsel of qualified legal authorities, and Doctor Paul Henry Holinger as its chairman. The College will be incorporated in the State of Illinois. We are confident that the care and labor expended in their formulation have resulted in a constitution and by-laws which will serve the requirements of our organization in perpetuity without the necessity for subsequent amendment or other modification.

Under the distinguished chief editorship of Doctor Ralph Matson, our official journal entitled *Diseases of the Chest* has attained new heights of literary eminence in respect to the type of the contributions which appear in its columns. It is contemplated to increase materially the number of pages in the journal, and the same standard of excellence will be maintained in the future issues. It is expected that less stress will be laid upon elementary aspects, such as early diagnosis, and added attention will be accorded to advanced phases of the subject. Plans for this enlarged journal are now being studied by the editorial board of the College.

The publication of our annual directory of fellows and associates of the College has been postponed until after the close of the present meeting, in order that the information which it contains will be the more comprehensive and thus better serve the convenience and interests of our members. This practice will be followed in future years, so that all additions and corrections necessitated by changes which may occur in the course of annual meetings will appear in the respective issues of the directory.

The portion of our general program as an organization which is concerned with our relationship to colleagues in other countries will be greatly expanded. Through the Council on Pan-American Affairs the efforts already inaugurated will be continued unremittingly until every republic of Central and South America in which a sufficient number of members can be enrolled is adequately represented. It is planned to associate the smaller republics together in a closely organized unit, in order that they may in turn participate from time to time in a unified symposium on diseases of the chest. Forms of application for membership in Spanish and Portuguese will be printed and supplied to prospective members in Latin America. As previously advised, the editorial board has under consideration the enlargement of our journal. When this is done we shall be in a position to abstract the papers into the Spanish language for the benefit of our members in the Spanish-speaking countries. In the Dominion of Canada the campaign for membership so effectively instituted by Doctor William Edward Ogden, Governor of the College for Canada, will be prosecuted with renewed vigor.

In conclusion a brief commentary upon the role of the organized medical profession in our program of national defense appears appropriate on this occasion. Although doctors are as profoundly affected by war as are other members of the community, they are, in virtue of the lofty ethics of their chosen vocation and the highly altruistic impulses which actuate them, far aloof from the din and tumult of battle. Again, while they share intimately in the patriotism of their neighbors, as nonbelligerent practitioners of the healing art they are quite unmindful of race and political creed, of friend and enemy. None the less, in the face of the challenge thrown down by despots, it is the solemn obligation of every medical man among us to ascertain without delay where he can serve his country most effectively in its hour of peril.

It has been estimated that more than thirty thousand doctors will be required eventually in military camps and combat zones. This

tentative figure is based upon the experience of the first World War. At present the most urgent demand is for properly qualified men preferably still under thirty-six years of age, who are intended to serve with armed forces either here or abroad. For such physicians who are able and willing to accept service with the army or the navy the federal government has established a bureau of procurement and assignment to which applications should be addressed by them directly or through their respective local medical societies. A questionnaire especially designed for the use of applicants has already been published in the majority of our state and national medical journals.

Though doctors aged between thirty-seven and sixty years may likewise register with the same agency for military or naval duty, and will if there is a definite need for their services be tendered commissions, the general consensus of opinion is that they can render greater service as civilians in their own communities. The health of the inhabitants of agricultural regions must be conserved if the nation is to be fed. In these areas the quota of physicians is already much too low for adequate medical care. Guns, ships, tanks, and airplanes must be produced by workers in factories and plants who will be required to toil for longer hours and on extra days. It is equally essential that the efforts of these workmen should not be impeded by poor physical condition, hence additional medical attention will be necessary in order to keep them fit.

Physicians who are for one reason or another unselected for service with the army or navy should seek diligently for opportunities for the exercise of their abilities elsewhere. Medical education should not be permitted to suffer because of a lack of instructors, or patients in hospitals at home from depleted medical and surgical staffs. Families and practices of colleagues who have been called to the colors must receive well deserved consideration and care.

Let us remember always that the health of its people is the most valuable asset of a nation. For centuries, in war as in peace, this precious possession has reposed securely in the loyal custody of the members of our honorable craft, and never have they proved unfaithful to the trust. During the dark days which confront us, may the brilliant precedent afforded by those of our professional brethren who elected voluntarily, nay even gladly, to incur the arduous hazards and heroic sacrifices imposed upon them by hostilities of a magnitude hitherto unparalleled in human history, enable us to realize more clearly than ever before with Idomeneus that—

"A wise physician, skill'd our wounds to heal,
Is more than armies to the public weal."

Ambulatory Artificial Pneumothorax Treatment in Puerto Rico

DAVID E. GARCIA, M.D.
Hato Rey, Puerto Rico

Puerto Rico is a small tropical island of approximately 3,400 square miles and a population of a little over 1,800,000 inhabitants. This population consists mainly of Spaniards and their descendants, continental Americans and negroes. The population per square mile is 529 inhabitants; that is, about twelve times that of the United States of America. Of this entire population about 67 per cent live in the country and the other 33 per cent in towns.[1] Not only is the island overpopulated, but the homes are overcrowded; there is an average of 2.6 persons per room in towns, and in the country the average number is 3.6.

Side by side with this problem of overpopulation, Puerto Rico has another problem even more serious, which I am sure is the root of all our evils. The wretched economic condition of the island is beyond anybody's expectation. According to the report written by Mountain, Pennel and Flook[2] of the staff of the United States Public Health Service pertaining to 6,000 families of all groups of this island, 60 per cent of all these families had an annual income of less than $500 and only 4 per cent had an annual income of

$1,000 or more.

Miguel Guerra-Mondragon, L.L.B., in an address made at the annual meeting of the Puerto Rico Medical Association in December, 1938,[3] stated that at that time there were 319,915 families in Puerto Rico. He stated further that 54.7 per cent of these families have only one sleeping room, 28.9 per cent have two sleeping rooms, and 16.4 per cent have three or more sleeping rooms. He said also that the average laborer was making from $135 to $169 per year. With this annual income it is impossible for them to have enough to eat, not only in quantity but in quality. The diet of the average Puerto Rican, especially of the low income class, is very deficient and completely unbalanced. So, the first stronghold of our health, i.e., the body resistance, is undermined.

The above statements give you a bird's-eye view of the economic condition of this island. Such poverty has inevitable deleterious effects on the general health and creates vast problems in sanitation.

The tuberculosis problem is likewise influenced by such undesirable circumstances. Those working in tuberculosis in Puerto Rico for some years have observed that the forms predominating are the chronic forms and not the acute as has been stated by some continental authors who judge our tuberculosis from their findings in Harlem. It is not because we doubt their findings that we disagree; but we are almost sure that the conditions under which Puerto Ricans live in those parts of the United States where they have severe winters, living usually with no relatives, and possibly in economic circumstances even worse than those found in our island, greatly influence statistics on tuberculosis occurring in Puerto Ricans there.

The magnitude of the tuberculosis problem here can be judged from the following table taken from the report by Dr. Garrido Morales and Dr. Rodriguez Pastor, Commissioner of Health and head of the Tuberculosis Department of Puerto Rico, respectively:[4]

Year	*Tuberculosis Deaths*	*Tuberculosis Death Rates*
1930	4080	263.2
1931	4338	275.5
1932	4755	297.3
1933	5476	337.2
1934	5082	308.3
1935	5094	304.5
1936	5182	305.3
1937	5091	287.1
1938	4954	274.5
1939	4747	258.4
1940	4886	260.9

It is an accepted principle today that for each tuberculosis death there should be at least one hospital bed, and that for each tuberculosis patient that dies there are around ten cases of active tuberculosis. Taking any year in the above table one can see that Puerto Rico needs at least 4,500 tuberculosis beds, also that there are around 45,000 active tuberculosis cases and about an equal number of inactive cases.

Facing this titanic problem, there was, prior to 1935, one tuberculosis hospital of around 400 beds at Rio Piedras. An energetic campaign was initiated in 1935 and with the help of federal agencies and by the operation of a lottery one step further was advanced. Yet the means at our disposal were even then very limited. Before the campaign the total number of beds, *including private institutions,* was a little over 500. This was increased to 1,400 charity beds plus around 160 beds in private institutions. A lottery to be played every ten days in the island of Puerto was established. By law it was specified that 50 per cent of the income derived by the government from this lottery would be employed to combat the white plague. This amounts to $502,050 per year.

It has been calculated that a case of tuberculosis hospitalized in a charity hospital costs the government in Puerto Rico an average of $323 per year, or around $25.25 per month. This is very reasonable compared with the cost of care in the United States of America.

The annual budget of the Department of Sanitation in this island is $2,299,727.12. Of this sum, $178,205.50 is dedicated to combat the white plague. A program providing for 4,500 beds for tuberculosis would cost the government around $1,453,000, calculating on a basis of $323 per year (actually, the cost would probably be less because of lower overhead expense), without counting the initial investment for buildings and equipment. This would be more than half the entire budget of the Department of Sanitation. It is obvious that the Department of Health could not afford

such a program with the funds available.

Yet, something had to be done. The waiting list for hospital beds was so large that sometimes a bed was occupied within a few hours after its previous occupant had left it. On some occasions, when the bed was ready the applicant next on the list was dead already.[5] In order to reduce the number of contagious cases as rapidly as possible with only 1,500 beds available, it was thought that a mass attack on the disease could be undertaken by the institution of ambulatory treatment of the cases by artificial pneumothorax.

In 1935 ambulatory artificial pneumothorax was started on 74 cases. This number has risen to 5,848 in the year 1940-41. The average cost per year of an ambulatory case successfully treated by pneumothorax has been estimated by the Department of Health to be $84. The average cost of a case hospitalized, as we said above, is $323, approximately four times that of the average ambulatory pneumothorax case. Roughly speaking, the Department of Sanitation would have spent $1,900,000 during one year to care for those 5,848 patients had they been hospitalized. Instead, it has spent approximately $493,332 in the same period of time for their ambulatory treatment.

Out of 5,562 patients whom Doctors Morales and Pastor[4] reported treated by this method, 12 per cent were minimal cases of pulmonary tuberculosis, 21 per cent were moderately advanced and 67 per cent were far advanced. From the same report I am copying the table of sputum conversions. It is shown that in the year 1940, 66 per cent of those under ambulatory care had a negative sputum. This means that several thousands of persons were protected from infection by the elimination of so many bacilliferous cases.

The plan has been carried out by means of tuberculosis centers and subcenters distributed throughout the island and located in or near towns with the highest tuberculosis mortalities. Sometimes one doctor has to attend two or three centers. There are also ambulatory x-ray units which visit the centers periodically for x-ray work.

A new case is initiated in one of these centers or subcenters. He waits there around one-half hour after the insufflation, after which time he is allowed to go home and is instructed to report at the center for the next refill at a specified date. The case is watched by the doctor with the local x-ray or the visiting ambulatory x-ray unit. Sputum examinations are done periodically. The treatments are continued until the case is considered arrested, after which he is instructed to report for successive check-ups.

To help in this work, the Department of Health has four tuberculosis hospitals, the main one at Rio Piedras with a capacity of 800 beds, and one each at Mayaguez, Ponce and Guayama with a capacity of 200 beds each. If the pneumothorax is not satisfactory, after discussion with the head of that service the case is sent to the Rio Piedras Sanatorium, which has been left almost exclusively for surgical cases. Any operation and all the operations needed are performed. There the case is hospitalized until he can be taken care of again by the tuberculosis center. Many of the patients have to be hospitalized at some time of their treatment, some for closed pneumonolysis and others for thoracoplasty. Still, the duration of hospitalization ranged from 6 to 7 months, which is considerably shorter than their previous average period of hospitalization of several years.

The cases are not only treated at the centers, but they are visited periodically by nurses and social workers who are associated with the tuberculosis centers. The workers investigate the conditions at home, give instruction to the family about the precautions to be taken, and bring the contacts to be examined and x-rayed at the treatment centers. They also find out why some patients do not return for treatment, helping if possible with bus fare and lunch when the economic condition of the case requires such a step. This aid is obtained chiefly from local societies to combat tuberculosis.

By the operation of such a plan a very large group of cases which could not be hospitalized because of the bed shortage is receiving a form of therapy which helps them considerably. Many times the patients are able to resume work before expected, thus saving lives which are still very useful to their families. Besides, the number of contacts will undoubtedly be considerably diminished after a sufficient length of time has elapsed, as a consequence of conversion of the sputum in many of the cases. By this plan, too, the government has been able to attack in mass a prob-

lem which, due to the economic condition of the island, was thought to be almost impossible to handle.

On the other hand, the plan is not without disadvantages or difficulties. It should be made clear that the Department of Sanitation had to overcome serious handicaps. Most important of them were the training of a group of physicians in the application of pneumothorax, x-ray and fluoroscopic interpretation. Nurses and other assistants likewise had to be trained. This service will be better every year but the training of adequate personnel must continue.

Complications from this large scale ambulatory treatment were expected by most of us to be rather high. There is no denying that they have had accidents. Anybody working in tuberculosis long enough is going to have accidents sooner or later.

In 296,915 insufflations the number of accidents occurring was 126, of which 15 were fatal. The number of patients concerned is not stated; but I consider the number of accidents small, especially if we keep in mind the difficult working conditions. Effusion and empyema were complications in 17 per cent of the minimal cases, 26 per cent of the moderately advanced and 35 per cent of the far advanced. I believe these figures are low, especially for the moderately advanced and far advanced groups; but even if higher, they would not be worse than the average.

It is obvious that some cases develop complications that can be better handled in a hospital; and in the event of such complications the patients are hospitalized. It may happen that for one reason or another some cases cannot be hospitalized; yet the great majority of them is given adequate treatment.

A program of mass treatment such as this is especially helpful in the education of the lower classes, bringing them in contact with persons trained in this field. The public is becoming aware of the great danger of tuberculosis. They may still be afraid and anxious when the first symptoms of the disease appear but they are beginning to understand that the only hope of recovery lies in the proper and timely treatment. They are not afraid as they used to be of pneumothorax, a pneumonolysis or a thoracoplasty. The public is gaining faith in the present forms of treatment of pulmonary tuberculosis, and is cooperating.

We do not try to prove in this paper that ambulatory artificial pneumothorax is the real solution of the tuberculosis problem anywhere. We just want to show some of the results obtained by the Department of Health of Puerto Rico which we believe really have some value, especially for communities with social and economic conditions similar to those of this island. They can benefit from our experience in their attempt to solve their own problem of pulmonary tuberculosis.

It should be made clear again that it is preferable to hospitalize all bacilliferous cases for proper treatment, at least until they are no longer contagious; but in poor communities with low hospitalizing capacity the ambulatory form of treatment as proved by the work in this island is highly successful.

In conclusion, we believe that the real effects of this program will not be noticed until several more years have elapsed; that is, until a larger percentage of the active cases of tuberculosis come under treatment. Of course, we do not expect that all of them will be treated by pneumothorax; but when these cases can be adequately controlled, especially the bacilliferous ones, the percentage of mortality will decrease substantially. It is to be

4,888 POSITIVE SPUTUM CASES

	Total	*Sputum Converted*	*Sputum Remained Positive*	*Per Cent Converted*
Total treated with positive sputum	4,888	2,151	2,737	44%
Treated 1 month and less than 3 months	972	149	823	15%
Treated 3 months to one year	2,004	734	1,270	37%
Treated over 1 year	1,912	1,268	644	66%

hoped that with the steady increase in the number of cases receiving ambulatory pneumothorax a definite decrease in the bacilliferous cases will occur. This drop is going to become evident in a few years, with a real drop in the mortality rate of tuberculosis in Puerto Rico.

References

1 El Médico ante el Problema Económico Social de Puerto Rico-Guerra. Boletín de la Asociación Médica de Puerto Rico. Enero 1939. No. I, Página 9.

2 Mountain, Pennel and Flook: "Illness and Medical Care in Puerto Rico," Public Health Bulletin No. 237, June, 1937, page 5.

3 Miguel Guerra Mondragón: Boletín de la Asociación Médica de Puerto Rico. Enero 1939, No. I, página 10.

4 E. Garrido Morales, M.D., and J. Rodríguez Pastor, M.D.: Boletín de la Asociación Médica de Puerto Rico, Abril 1941, No. 4, páginas 130-136.

5 L. Gaetán Roberts, Director Insular Sanatorium: Personal Communication.

Tuberculosis Control

JAMES W. W. DIMON, M.D.
Utica, New York

About twenty five years ago, when I was still young in the practice of medicine, I had the dramatic experience of seeing a case of old-fashioned galloping consumption develop in my own house and progress to a fatal termination in a few months. With the realization that this could happen to any one of us, I became interested in the diagnosis and treatment of tuberculosis and I have maintained that interest ever since. During the ensuing years the progress made has been striking, and it now appears as if there were at least a possibility of accomplishment of the aim of practical elimination of tuberculosis by 1960.

The campaign for the eradication of this disease is based fudamentally on the fact that it is of a contagious nature and caused by a specific micro-organism. This fact was proved conclusively by Koch in 1882 but it took fifty years to realize fully its implications and to evolve an effective plan of control and eradication. Even now we occassionally hear that tuberculosis has been caused by poor nutrition, over work, or debilitating sickness, when we know that this can never happen without the presence of the tubercle bacillus, and that for practical purposes the only source of the organism is the sputum of someone who has already contracted the disease. A few years ago we had to consider bovine infection but this is no longer necessary due to the very successful campaign to eradicate it.

Undoubtedly the delay in realizing the implications of the contagiousness of tuberculosis was due to its very long latent period. In measles the clinical disease develops ten to fourteen days after the contact of the patient with the parasite. In tuberculosis the lapse of time may be as many years, but the process is essentially the same; and the disease can be acquired only from some one else who already has it. From a public health standpoint, therefore, the control of tuberculosis simplifies itself into three problems: the treatment of the patient, the discovery of the source of infection, and the prevention of further spread by proper measures of isolation and sputum disposal.

It would seem that the progress in the treatment and control of tuberculosis has followed and depended upon improvements in our methods of diagnosis. There have been three definite steps along this line: first, the use of the stethoscope for the determination of rales after cough; second, the study of the x-ray shadow; third, the wide-spread employment of the diagnostic tuberculin reaction.

It was not so many years ago that we heard the story of the old fashioned doctor who scorned to use the stethoscope in the diagnosis of tuberculosis because he thought he could tell a case of consumption by the appearance of the patient, and because at all events the diagnosis was unimportant, inasmuch as the patient always died. These cases were an unsolved problem for the general practitioner and their care a disagreeable duty to be avoided if possible. The procedure of listening for rales after cough in the upper

part of the chest aided in the diagnosing of early cases; and it soon became apparent that the hope of arresting the disease was greatly increased if the condition was discovered in its first stages.

Following the improvement in diagnosis came the building of hospitals especially for the treatment and care of minimal tuberculosis. The advanced cases, the old chronics, were still neglected; and I must say in passing that it was the surgeons who eventually interested themselves in this problem and who have made the treatment of that class of patients fascinating, brillant, and hopeful.

The attention of the medical profession was focused upon early diagnosis; and the more general use of the x-ray was the next great advance in this direction. It was discovered that often the tuberculous process in the lung started before the development of clinical symptoms; and, in fact, that when a patient first realized that he was sick the pulmonary process might have progressed to a considerable extent.

Now it is true that a good x-ray will often disclose pathology which is not apparent on physical examination, but reliance on this diagnostic aid is so easy that I fear today we are beginning to neglect the irreplaceable knowledge that we gain from a thorough physical examination. It is sometimes a shock to observe that surgeons and clinicians have not confidence in their ability to evaluate what they can hear through the stethoscope. After all, good medical practice here as elsewhere must rely on what we can see, feel, and hear; and laboratory tests, often of great value, should be used as supplementary aids to obtain more detailed information.

Next, the more general use of the tuberculin-testing came into practice; and it became apparent that the beginning of tuberculous infection might occur years before active pulmonary pathology developed, often in childhood. Following the line of reasoning that the earlier the tuberculous patient came under treatment the better the clinical results, there was a marked tendency to build and enlarge children's sanatoriums and health camps. However, it was soon recognized that this early or childhood type of infection was generally not of a serious nature and that hospitalization was unnecessary. These children should be kept under observation, certainly, to forestall the development of adult pulmonary tuberculosis but the main value of the tuberculin test was, perhaps, in the discovery that they had picked up the germs, thus indicating that they had come in contact with a so-called open case. The problem, therefore, was to discover that open case so that further spread of the disease could be prevented. The effort was at last enlarged from early diagnosis and treatment to include the prevention of infection entirely by the discovery and control of the original source of the disease—those people, be they sick or well, who are expectorating tubercle bacilli.

This aim, then, gives us the basis of our present campaign. It is founded on the propositions that we are dealing with a disease whose contagious character is due to the tubercle bacilli in the sputum of those people who are infected with the germ; and that if the disease is to be eliminated these people must be discovered and brought under control so that they will not spread the infection through the dissemination of their sputum.

It would seem self-evident that any program for the treatment and control of tuberculosis must rely for its success on the cooperation and approval of the practicing physicians. These are the men who, through their education and life training and the very nature of their work, have the best understanding of the problems involved. These men are primarily interested in the treatment of sick people and are willing to delegate the responsibility of the epidemiological control of the disease to the health authorities and social workers, provided these agencies do not become unduly dictatorial or interfering. The two functions of treatment and control, of course, overlap. Every practicing physician should consider himself a deputy health officer whose duties include the enforcement of practicable health regulations and the discovery of cases of infection, perhaps subclinical in nature, who act as foci for the spread of the disease. The health authorities and organizations on their part should make available to the practitioners their diagnosing facilities including, especially, x-ray. It would seem advisable whenever practical to delegate this diagnosing public health work to competent practicing physicians. In this way interest will be stimulated among these men

who are the first to come in contact with the cases of tuberculosis in the general population. Any tendency of the public health authorities to allocate this work entirely to themselves or to assume that the practicing physician is lacking in the knowledge necessary for tuberculosis diagnosis and control is to be deprecated.

In the treatment of the active case of tuberculosis two aims are to be kept in mind: the cure of the patient and the prevention of the spread of the disease to others. The attainment of the first aim, the cure of the patient, still rests on the old and well-proven measures of rest, fresh air, good food, and a proper regime strictly adhered to. In addition, we now have certain surgical measures which are of inestimable benefit in suitable situations. Secondly, to prevent the spread of the disease, we must control the danger of droplet infection by too close contact, and enforce measures of efficient sputum disposal and sterilization of all sputum-contaminated objects. There is no doubt that theoretically the most efficient thing to do would be to hospitalize every active case as long as he is expectorating tubercle bacilli. Under our present ideals of democracy this is not possible and indeed it would often work undue hardship. However, a period of hospitalization would seem advisable for nearly every patient at the beginning of his sickness. This would accomplish three purposes: first, the opportunity of close clinical observation and the use of any special therapeutic measures which may be indicated; second, the education of the patient in the methods of cure and the protection of others from the danger of contagion; third, the prevention of the spread of the disease during the time when the patient is being educated by first hand observation along these lines.

I have spoken of the treatment and control of the sick patient. As in the case of any contagious disease, the second great problem is to find every case of infection. The eradication of tuberculosis depends fundamentally upon this factor, and upon the elimination of each case as a source of contagion.

We are attempting to accomplish the task of case-finding by three main methods: the extensive use of the tuberculin test, especially in children; the x-raying of certain groups in our population; and the diagnosing clinic. It has been common experience to find that the percentage of tuberculin reactors is on the decrease. This of course means that tuberculous infection is becoming less and that the candidates for pulmonary tuberculosis are becoming fewer. As I have said, the idea that these tuberculin reactors are in need of active treatment is no longer held; and the main value of this work is in pointing the way toward the sources of infection. Where it is possible to make a comprehensive survey of tuberculin reactors among school children at some stage in their education, valuable information can be obtained as to the families and locations that are responsible for the spread of this disease.

The x-raying of certain groups of our population is often too expensive for wide usage. The small size x-ray films bring down the cost materially; but the original equipment is expensive, and hard to obtain on account of the defense program. However, there are certain groups which are especially entitled to this type of accurate examination. First among these, on account of their close association with children, I would place school teachers. Next would come nurses, both for the possibility of exposure to themselves and because of their close contact with persons whose vitality and resistance is lowered on account of sickness. A third important group is patients in mental hospitals where a long period of confinement is necessary. It is a fact that in such institutions where surveys have been made the percentage of tuberculosis increases with the duration of the patient's stay. This means that a certain number of patients develop clinical tuberculosis during their institutional care. The patients come in with one disease and after a period of time they have two diseases. I do not think that these hospitals can hold themselves blameless if they do not adopt periodic examinations of their inmates, including chest x-rays. Other groups such as high school and college students, negroes, and certain classes of industrial workers can well be added to the list.

Probably the most efficient means of case-finding that we have is the diagnosing clinic. The functions of such a clinic are three: to give aid to the practicing physician in diagnosing his cases with suspected pulmonary pathology; to discover cases of latent and active tuberculosis; and to educate the public

as to the nature of this disease and the means being employed in its eradication. The clinic can be of especial help to the practicing physician in making available x-ray facilities to those patients who would otherwise be unable to obtain them. There is no doubt that x-ray examination is of great assistance in the diagnosing of chest conditions and is often beyond the means of the patient. If the clinic furnishes x-rays and examination on a consultation basis when requested by the attending physician the privilege will certainly be made use of and cases of tuberculosis will be discovered. Even if there is some abuse, it is counterbalanced by the finding of new cases. If the consultation privilege is left to the discretion of the attending physician the clinic will be protected from the criticism of encroaching on his practice. It is true that the private roentgenologist will lose an occassional case, but there is no doubt that the educative value in regard to x-ray diagnosis will amply make up for his loss in the long run. The clinic should be meticulous in adhering to the ethical rules of consultation. This is neccessary if the cooperation of the practicing physician is to be maintained. The patient should be returned to his doctor; the information requested should be furnished, and there the connection should cease except in such further matters as may be requested by the referring physician. It is quite possible that he will be glad to be relieved of the responsibility of examining and x-raying the contacts, of arranging the patient's transfer to a sanitarium if this is advisable, or of giving aid in home nursing or supervision.

The educative value of clinic work is probably not generally realized. It is neccessary to get people interested in the control and eradication of tuberculosis and to show them how these are being accomplished. There is no better way to do this than by friendly personal contact in the clinic. The patients may come on first admission with a feeling of hesitation, perhaps of mild irritation because they are there due to persistent urging. They should be met with a friendly spirit and there should be a well-organized routine planned for their convenience and to protect their sensibilities. A few personal words from the doctor or nurse explaining what is going on and what it may mean to themselves and the community as a whole may give a favorable impression and leave the patient with a sympathetic understanding of the work. Too often a little carelessness will bring the opposite result. As to case-finding, the two groups of patients which yield the best results are those referred by private physicians and contacts of known cases. A well-operated clinic can easily have 50 per cent of its new admissions from the first group; and if the work of examining the contacts is vigorously pushed they will almost supply the balance. The examination of contacts is, indeed, of prime importance. It is to be remembered that tuberculosis is a contagious disease and when a case is diagnosed two other problems immediately present themselves: to discover if possible from whom this patient acquired his infection, and to examine at proper intervals all persons who come in contact with the case as long as he is expectorating sputum. A few others will come to the clinic on their own volition or at the suggestion of some friend or social agency. In dealing with these cases, also, it is advisable that the clinic confine itself to examination and diagnosis.

A few words as to organization may be added. The clinic should, of course, be under the general supervision of a physician who is interested in this type of work, and who may well be in active private practice. He should regulate the policies and routine employed. It is advantagous that he or his associates examine each case and by personal questions establish the main facts relating thereto. By such procedure only can many conditions be properly evaluated. X-ray alone is not sufficient. It will not indicate whether a tuberculous process is active, nor will it always diagnose accurately such conditions as bronchitis, emphysema, bronchiectasis, cardiac decompensation, etc. Subsequent to the clinic session, as soon as can be arranged, and in the presence of the nurse, he should look over the x-rays, verify his diagnosis, and formulate his recommendations. This report should then be sent to the referring physician.

The nurse in charge should have experience and enthusiasm for this work, because on her, no less than on the clinic doctors, rests the responsibility for success. She and her assistants should organize and prepare for the clinic in advance, arranging the examinations by appointment as much as possible. She is responsible for the preliminary history-taking,

the preparation of the patient, and his guidance through the clinic routine without undue delay or inconvenience. She must see that the referring doctors get their reports. The clinic records are her responsibility. These should be kept in accordance with the rules of the governing health authority and in such a way that there will be a clear picture of the families and locations from whence infection is liable to spread. The clinic patient should get the impression of a well-planned, smoothly running organization. If treated with consideration he will willingly cooperate in the steps of history-taking, interview and examination by the doctor, and x-ray and other laboratory procedure. He will return to his own physician with interest in the final report which he will obtain from him, and it is to be hoped that he will be stimulated to some constructive thinking about tuberculosis control as a general problem as well as an individual one.

In this paper I have attempted to give an idea of the development of our present day methods of tuberculosis control and of their working application, especially in regard to the diagnosing clinic.

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Percussion of the Clavicle

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Percussion of the clavicle has never been given prominence in physical examination. While few of the text books mention the subject at all, occasionally a brief description is found to the effect that the bone is resonant in its central portion, tympanitic towards the sternal end, and dull towards the acromial end. In practice one usually sees the direct type of percussion used in a more or less perfunctory manner with seldom any great amount of information obtained.

If the bone is to be percussed, the indirect method should be used. It will be found then that the resonant portion can be accurately outlined and will vary characteristically when disease is present in the lungs beneath. The resonant areas or clavicular bands are not truly central in location, but are to be found nearer the sternal end of the bones. They show some variation in size and location in normal individuals but are symmetrically placed and equal in size in individuals with normal lungs and chest cage. The bands in adults normally measure 4 to 6 centimeters and their percussion note is unmistakably resonant. At the medial border the note changes to tympany; at the outer, to dullness. In children the inner border frequently is much nearer the sternum than in adults and at times may be medial to the sterno-clavicular joint.

The borders do not regularly coincide with the actual lung borders or the anterior borders of Kroenig's areas of reflected resonance.

Infiltration of the lung produces a narrowing or contraction of the band. This contraction occurs even if the infiltration is a considerable distance below the clavicle. With dense infiltrations the resonance of the band becomes greatly reduced; however a contracted band of impaired resonance can still be identified. Occasionally a slight decrease in resonance may appear near the border of the band as occurs in Kroenig's sign. Such slight changes are disregarded as the contraction will still be present if the border is outlined at the point where resonance entirely disappears.

Emphysema of the lung causes a widening of the band. Here the median border moves inwards, at times even beyond the limits of the clavicle. The outer border moves laterally, now including in the band part of the area usually dull. The widening effect of emphysema is so well pronounced that when infiltrations are present in an emphysematous lung the band will usually take the expansion of emphysema, rather than the contraction of infiltration.

Widening of the band is also found in pneumothorax when the apex of the lung falls below the clavicle or pulls away from the anterior chest wall. With less marked collapse, where lung structure is still present above

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the clavicle in apposition to the anterior chest wall, the band will show contraction.

Changes in the contour of the chest cage which accompany scoliosis displace the bands but do not change their size. Displacements occur outwards on the side showing prominence of the anterior ribs, and inwards on the opposite side where the ribs are flattened.

In percussion no great care need be exercised in the position of the patient, but the clavicles should not be forcibly elevated or pulled backward. The pleximeter finger should be placed with firm pressure at right angles to the bone. Percussion should start in the resonant portion and the borders sought by moving the fingers in either direction. Approaching the borders the pleximeter should be moved little by little by sliding the skin over the bone rather than by raising the finger from the surface of the skin. As in all percussion, the strength of the blow is varied with circumstances and that blow used which seems most suitable for the particular patient. Difficulty may be experienced at times with the right lateral border where in normal individuals a slight percussion change is sometimes found inside the true border. Some difficulty may also be experienced with the inner border in cases with sharply deviated trachea, where the contrast lies between resonance

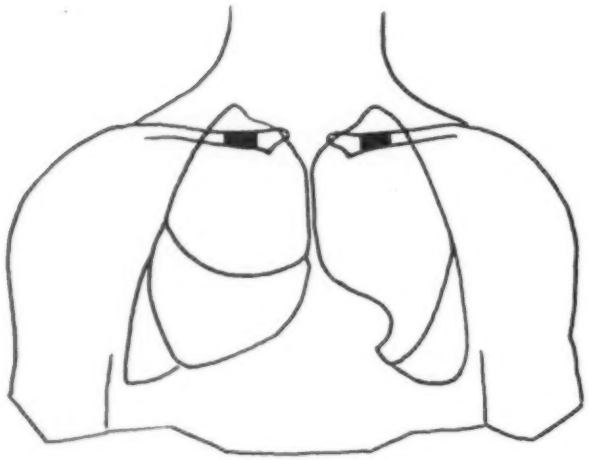

FIGURE I

Clavicular bands shown as solid areas on clavicles.

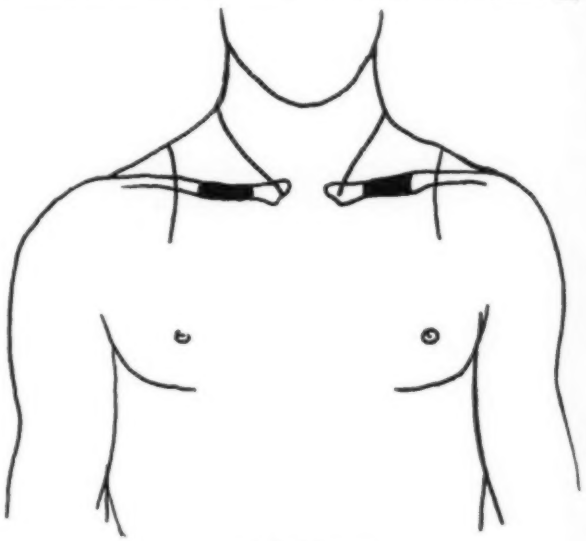

FIGURE II

Kroenig's areas outlined by lines—clavicular bands shown as solid areas on the clavicles. The borders of the bands are usually found inside the prolongation of Kroenig's lines.

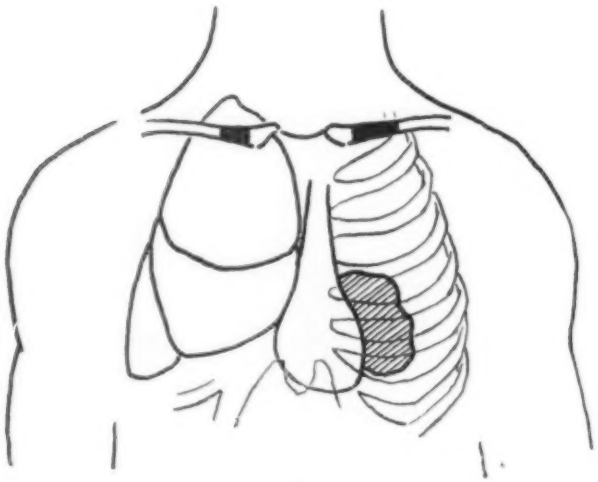

FIGURE III

Pneumothorax—showing widening of clavicular band in complete pneumothorax.

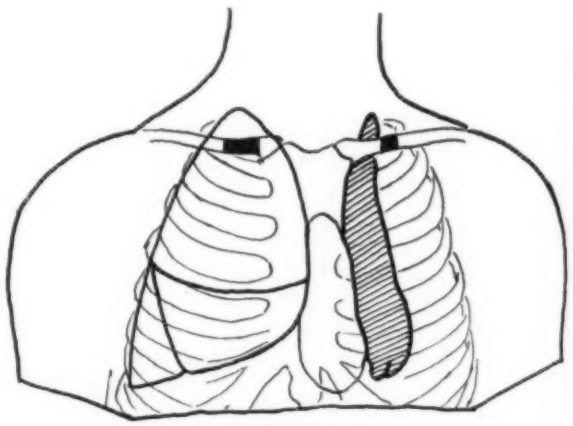

FIGURE IV

Pneumothorax with part of compressed lung still above clavicle—band contracted.

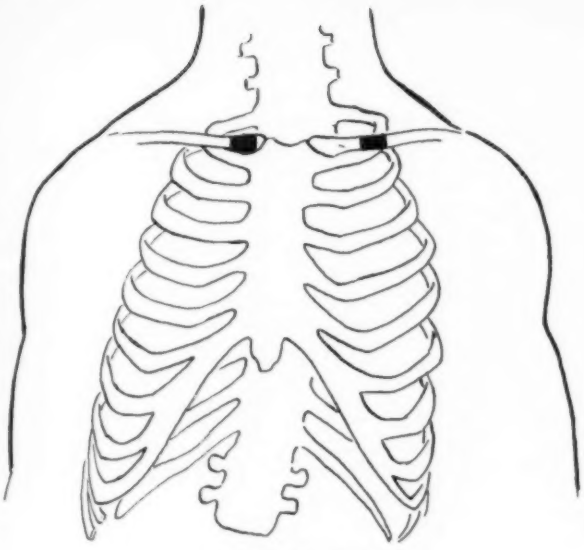

FIGURE V

Dislocation of the clavicular bands in scoliosis.

and a more marked tympanitic note than is usually present.

Occasionally large cavities have a tendency to widen the band. Cases of pleural thickening over the extreme apex, with but little subpleural infiltration, may not produce the expected contraction of the band. Frequently the bands may widen slightly after expiratory cough and forcible respiration, so that when doubt is present it is wise to check the examination again after auscultation.

In addition to the information elicited by the size of the band, clavicular percussion is of value in comparing the percussion note of the two lungs. Here also indirect percussion should be used. Small differences in resonance are readily recognized but as elsewhere the comparison should be made in corresponding areas, preferably the center of the band.

Application: Any procedure which assists in the recognition of infiltrations in the upper parts of the lung is of value in physical examination. It is to be regretted that the current medical literature seems more and more to preach the inadequacy of physical examination in early pulmonary disease. Possibly hurried percussion in noisy examining rooms explains the general lack of results from this time-tested procedure. Adding clavicular percussion to the percussion of Kroenig's isthmi and careful percussion of corresponding areas, fewer infiltrations will pass unrecognized. Percussion of the clavicles has been particularly helpful in examining severely ill bed patients where the accessibility of the bones provides a great advantage over the awkwardness of percussing the neck for Kroenig's borders. In emphysema the sign brings to mind at once the condition of hyperventilation and points to the necessity of using signs and procedures possibly not common in routine study. In instituting a pneumothorax at home, where the fluoroscope is not available, the widening of the band signifying a successful apical collapse is most welcome.

It is thought that the procedure described is of sufficient value that it could well be added to all routine physical examinations of the lungs.

NOTICE

The Annual Directory of the American College of Chest Physicians containing the membership roster is now being prepared for the press. Changes in address and other corrections should be mailed to the executive offices of the College promptly.

Meeting of the Council on Undergraduate Medical Education*

The Council on Undergraduate Medical Education of the American College of Chest Physicians met at a luncheon session at the Hotel Statler, Cleveland, Ohio, June 1, 1941. Dr. Edward W. Hayes, Monrovia, California, Chairman of the Council, presided, calling the meeting to order at one-thirty o'clock.—Ed.

Chairman Hayes: I am sorry to start while you are eating, but unfortunately we were a little delayed in getting started with the serving, and if you will excuse me for calling you to order at this time, we shall proceed.

Needless to say, I am extremely happy, as Chairman of this Council, to see the fine turnout at this meeting. I believe I have learned something today; that is, that after this when I preside at a meeting, I shall make it clear that the speeches will be made by others than myself. It seems to have worked very well.

Some of you men have been listening to me talking on this subject for a good many years and my own remarks today are going to be brief.

I think all of you understand that one of the principle objectives of the American College of Chest Physicians is to bring about in the medical schools of the country conditions which will provide for a more satisfactory teaching of chronic diseases of the lungs, particularly tuberculosis. The idea is to have this subject presented in such a way to the future doctor while he is still a student that when he goes out to practice medicine he will have a practical understanding of the facts that have to do with the diagnosis of tuberculosis in its early stages and a knowledge of the principles involved in early and effective treatment of tuberculosis. He will also understand the factors that have to do with the prevention of tuberculosis and because of this understanding and knowledge, he will be able and willing to take a leading part in putting these factors into effect.

I think most of you agree that the average medical graduate today does not possess this understanding or knowledge. During the past five years, this Council has, at two different times, made a detailed study of the conditions under which chronic diseases of the lungs are taught in the medical schools throughout the United States. It also has studied the report made by the Committee of the American Medical Association on their survey of the medical schools. It is the opinion of the Council that there are not more than ten or twelve of the medical schools in this country that give the student a practical working knowledge of tuberculosis. If the student does not get this while he is in school, he has very little opportunity to obtain it after graduation. In the institutions where internships are served, only one out of every twenty-four offers a tuberculosis service, and in some, at least of those places where such a service is offered, it is not very efficient.

In the absence of a specific for the treatment of tuberculosis, we have to depend upon an educational campaign in our efforts to control this disease. In the past, this campaign has been carried on, for the most part, by the laity. The medical profession, except in the case of a few who either have had tuberculosis themselves or have had it occur in their families or who by chance have been brought into professional contact with the disease, has played a very minor part in the anti-tuberculosis campaign.

In other words, in the past we have had the cart before the horse, because we have failed to educate those who in turn should do the educating, since we have failed to give the doctor in the making, a practical knowledge of tuberculosis.

It is not the thought of this Council that the students should be made specialists while they are in school but simply that they should be made tuberculosis conscious, so that they will know how to think and how to advise in regard to tuberculosis when they go out to practice medicine and can assume the leadership in the control of tuberculosis. Again, it is not the thought of this Council that the medical schools in general should be asked to devote more time to the teaching of this subject; however, in a minor proportion of the schools, more time will have to be allotted if the subject is to be handled

*Presented before the Seventh Annual Meeting of the American College of Chest Physicians, Cleveland, Ohio, June 1, 1941.

adequately. What this Council does ask is that the time allotted to tuberculosis in the regular teaching schedule of the medical schools be used so that the subject will be presented to the student in a systematic and orderly manner. This is not done in most schools at the present time and it is due largely to this lack of system in the way the subject matter of the course is arranged, as well as in the way it is handled by the instructors, that the medical student fails to receive an adequate training.

I have asked some of the men who have been particularly interested in this subject and who are prominent teachers in this part of the country to speak to you briefly today and to tell you their experiences and their ideas. I hope that when they have finished, we shall have time to have expressions from others of you who are here, as this Council is very desirous of obtaining your ideas on the work it is endeavoring to carry out. We realize, of course, that the big problem is to have this schedule put into effect in the medical schools and I hope that if any of you have any suggestions for the solution of that problem, you will offer them to us at this time.

I am going to ask Dr. George Ornstein to open the discussion.

Dr. George G. Ornstein, New York, N. Y.: Most faculties in arranging their curriculum are aware of the importance of teaching tuberculosis, and yet they will limit the time for this important subject to a few hours in the third and fourth years. The reason is a simple one. There is too much subject matter to cover in so short a period as four years and very little time can be allotted to the specialties. Besides, medical schools believe that their sole purpose is to prepare their students for entrance into medicine and surgery and their future development will depend upon training during internship and further postgraduate studies. They also relegate the specialties entirely to postgraduate study and try simply to give their students a superficial concept of most of the specialties.

Dr. Hayes, the chairman on education, in teaching tuberculosis to the undergraduate student, has worked very hard to improve such teaching. He and the members of his Council have mapped out in detail a schedule for teaching, consisting of a minimum of 76 hours or more, divided over a period of four years. Such a schedule would be ideal. I may state that in the medical schools in New York City they usually have a two-week elective and all of the students do not elect to have it.

In one of the schools where I have been in charge of the teaching of tuberculosis, the time allotment has been shortened from one morning every week of a trimester both in the third and fourth years, to a paltry twenty-four hours *divided between the third and fourth year*. This change was a very interesting experience. The school is a very progressive one and has been constantly improving these past five years. As the school improved, there was less and less time for specialties. The men responsible for the curriculum were very fair and tuberculosis suffered no more than other major specialties. Our problem then was to stimulate an interest in a complex subject like tuberculosis in the few hours allotted to us. We experimented with our methods of teaching. We found the student displayed no great interest when we stressed early diagnosis, discussed history and physical findings, and displayed a few patients and x-rays. The students were attentive, but with the end of the course their interest ceased. We then decided to utilize the first 12 hours in the junior year by devoting it entirely to pathogenesis. We made certain that the students were acquainted with the complete pathogenesis of primary and reinfection tuberculosis. We made certain that they could identify the various forms in x-rays. During this period we also made sure that each student could use a stethoscope and furthermore could interpret the sounds heard with the stethoscope. Every minute of the 12 hours was utilized. The slow students were urged to come one-half hour earlier than the class for special training in auscultation.

The third year students could hardly wait to apply their knowledge on the wards in the fourth year. We avoided selected clinics. We worked from bed to bed. The students worked up and presented their cases and we were able to cover about eight cases a morning and at the end of the 12 hours at least 32 cases of tuberculosis were presented covering all phases of tuberculosis. Students were

urged to read a great deal. The course in the third and fourth years consists of four successive Mondays. This fits in well with allotment of subjects for reading and debate. We have stressed the fact that there is no unanimity of opinion and the students must decide for themselves which is the correct opinion and were urged to formulate their own. This in itself stimulated more reading.

We have carried on in the above manner for the past five years. There has been a continuously growing interest in tuberculosis year by year. The interest this year became so great that the junior class persuaded the faculty to allow them to have a clerkship for two weeks at Sea View Hospital during the summer months. Fifty per cent of the students (forty in number assigned for this elective course) elected to take the two-week clerkship, and the faculty is willing to make it a permanent elective if it is successful this year. We at Sea View promise you it will be successful.

For the present the important work of this Council is to see that tuberculosis teaching is a part of the program of every medical school. Let us work out how interest in tuberculosis can be stimulated in a small parcel of time. Let us try to stimulate the student to desire the experience of a clerkship in the local sanatorium. Let us also stimulate both local and distant sanatoriums to open their doors to the undergraduate medical students for further education in the form of clerkships during the vacation period between the third and fourth years. This teaching at the sanatorium could be worked out under the guidance of the medical school. It is my impression that we might be more successful in persuading the medical student to give us this extra curriculum time.

Chairman Hayes: Thank you very much, Dr. Ornstein. I am going to ask Dr. Ralph Matson to continue the discussion.

Dr. Ralph Matson, Portland, Oregon: I must say that I feel very grateful to Dr. Hayes and to the members of this Council because, as a member of the curriculum committee of the University of Oregon Medical School, one of the duties assigned to me by the rest of the committee was to break down the hours devoted to tuberculosis.

As a matter of fact, I have forgotten the exact number of hours which were your maximum but we have gone four hours over that.

Chairman Hayes: 186 is the maximum number of hours.

Dr. Matson: How we have gotten these additional hours I cannot explain, but one of our problems was to get the bacteriological department and the pathologists to outline the details of what they were teaching. I mean to say, that it was not sufficient for them to say that they gave a course on it; they had to outline every detail of it, how it was carried out and to what it was devoted in the first year, hour by hour.

Then in pathology, we found that one of the pathologists would be teaching one classification and another would be teaching another, so I gave them Goldberg's book and it was adopted. Then in the third year, the class is broken down into groups. They go into the out-patient clinics. All this teaching is done in the new State University Tuberculosis Hospital where we have a very large medical amphitheatre which accommodates the entire class and a surgical amphitheatre which accommodates half the class. I have the senior class for one hour throughout the entire year.

My responsibility is to the senior class; however, I am responsible for the entire course in tuberculosis.

The senior attendance is compulsory. The students are very carefully checked to note that we have 80 per cent attendance for these hours.

In the third year, the classes are broken into groups for clinical purposes, and the same in the senior year. There are also two elective courses, one on medical aspects and one on surgical aspects. It is our idea that the students will have complete visualization of the various surgical procedures and the students are compelled to attend. They will see at least one of every type of operation which is done. The out-patients' clinic is also in this hospital and there they have abundant material and time to work with these out-patients. They are also engaged in the follow-up and social service work.

I don't think there is any more that I can say on the subject.

Chairman Hayes: I should like to have you say a word, Dr. Matson, if you will, on how adaptable you feel the schedule published last

year by this Council may be to any particular medical school, inasmuch as you have studied it in detail.

I have studied it. I turned the recommendations of your Council over to the curriculum committee and they studied it at length in my absence, and it was accepted. I see no reason why any medical school could not adopt the program that you have offered. There are going to be some fights in the departments of bacteriology and pathology; they may have their own ideas, but I think it could be worked out.

Chairman Hayes: Thank you very much, Dr. Matson.

I appreciate hearing from Dr. Matson. He is one of the teachers who took our schedule, even before it was published, and I think he has made a very serious effort to put it into effect in his school. I am particularly happy to have him here and to have him tell us about it at this time.

I do not want to talk too much, but I wish to express one or two ideas of the Council. Dr. Matson mentioned the fact that he met the senior class throughout the year. The Council feels that, inasmuch as tuberculosis is a chronic disease, it is not a disease of a few days or a few weeks, but is a disease of months and years. Therefore, in order to teach it effectively, the course should extend throughout the year. As you know, during the course of tuberculosis, there are many unexpected changes that take place, and, in order to have the students understand and appreciate these changes, they must have an opportunity to follow the patients along through the course of the disease from the beginning to the end if possible.

Again, if we are to teach tuberculosis effectively in the medical schools, we must have proper teaching material. According to our survey, a good many schools do not provide this. In addition, we must have teachers who are capable and willing to teach. Dr. Zapffe, the secretary of the Association of Medical Schools, is interested in the work of this Council. In my talk with him he expressed deep interest. He said that in his work there is one thing he cannot do; that is, he cannot make teachers.

Dr. Raymond C. McKay of Cleveland will speak now.

Dr. Raymond C. McKay, Cleveland, Ohio: My special interest in this subject began about four years ago with the observation that the interns who passed through our hospitals showed, in my opinion, an amazing lack of the modern concepts of tuberculosis, not only in regard to the ordinary clinical aspects of pathogenesis, diagnosis, and treatment, but also in regard to the public health and pathological aspects.

That observation, I think, is unusually significant in view of the fact that our institution has each year about forty new interns, who, over a five-year period, have represented some forty-five of the Class A medical schools. Moreover, our intern committee assured me that the men selected had all come from the upper third of the class in their respective schools so that I thought I had a fairly good sampling of what was *not* being accomplished in the teaching of tuberculosis throughout the country. At first I had what I think now is a rather foolish idea that it might be possible for some national organization such as this one, or the National Tuberculosis Association, to bring some pressure to bear upon medical schools, but after a number of conversations with older and wiser heads I have been convinced that medical school faculties are not very amenable to coercion, and I have come to the conclusion that the real solution of the problem lies in continuous efforts on the part of such organizations as this to educate the educators. I should add that I think real progress is being made, and that the men who come to us today are better prepared in tuberculosis than were those of four years ago.

With regard to our own problem in Western Reserve University, our situation, I think, is a little different from that which Dr. Hayes described for the average medical school. I don't believe that we have enough time devoted to tuberculosis. I am well satisfied with their preliminary instruction in pathology and bacteriology, but the time allotted to the teaching of clinical tuberculosis is limited to a series of lectures totalling about fourteen hours, in the third year, plus four or five hours in chest surgery, and a total of about eight hours for clinics, given to small groups in the fourth year. I don't think that is enough time. What distresses me most of all is that we have as rich teaching material, easily and conveniently available, as I could

well imagine. What I would like to accomplish is to get the continuous, undivided attention of our senior students, for even so short a period as one entire week. I think if they could be made to think about tuberculosis and its problems consecutively for even a few days they would absorb a great deal more than they do now when they think about tuberculosis for one hour, and then forget it for a week and then think about it for another hour, and so forth.

You might be interested in this story: One of our residents, whose education had been obtained in a well-known teaching hospital associated with a prominent southern university, remarked that he had always thought that his hospital could hold its own with the rest of the world in practically every branch of medicine and surgery, but he had to confess that he was ashamed of the way they handled tuberculosis. I think that if we could succeed in getting such a conception into the consciousness of medical students generally, perhaps they could exert more effective coercion on the medical faculties than can be imposed upon them from the outside.

Chairman Hayes: Thank you very much, Dr. McKay.

The Council realizes that it is a delicate proposition to approach medical school faculties on this particular subject. It also realizes, however, that if we do not start, we shall never get anywhere. Now that we have made a start, if we continue our efforts and keep hammering away, we shall eventually accomplish our purpose. It may take a long time, but the Council believes that the results obtained in the end will be worth the effort.

In regard to interns, you know that we have about 130 interns in the Los Angeles General Hospital, and it has been my privilege to work with those men and women for the past twenty years. They come from all over the United States and they are a select group of medical graduates. It was through working with these interns that the feeling, which I have had since I was a medical student myself, that something should be done to improve the teaching of chronic diseases of the lungs in the medical schools, was greatly enhanced. Dr. Kupka, here, who is now on the staff of the Los Angeles General Hospital, shares that same feeling.

I wager to say there is not a teacher here that has not had the experience of having his students say to him that he tells them something that is entirely different from what some other teacher in the same school has told them. That is due to lack of system. What we need is system in the presentation of this subject.

We have a few minutes left. I want to hear from you men.

Dr. Aaron Keinigsberg, Chicago, Illinois: It has not been so long since I sat on the benches of a medical school so that I can still remember the difficulties students have in acquiring some knowledge of tuberculosis. The comments which you made are only too true. It is not only that medical students are not given enough time in tuberculosis, but they are also given a great deal of misinformation both as to the symptoms and the physical findings of this disease. As recently as 1935 Norris and Landis in their textbook on diseases of the chest presented a series of fifty cases of tuberculosis in which the authors stated that nearly seventy per cent of the cavities were diagnosed by the presence of tympany. The more recent editions of this book have been improved but unfortunately many textbooks on medicine or physical diagnosis still present to the medical student and practitioner the myths which have descended from the time of Auenbrugge and Laennec. The same thing is true for the teaching of the symptoms of tuberculosis.

I was at Oakdale when Dr. Peck started a course in tuberculosis for medical students attending the University of Iowa and I can recall some of the difficulties we encountered at that time. It is not only important that more time should be allotted to tuberculosis in the curriculum, but either phthisiologists should do the teaching, or those professors of medicine who lack extensive practical experience in this field should themselves first learn the modern concepts of tuberculosis before trying to teach this subject.

About a month ago I was present at a hospital staff conference in Chicago when the problem of tuberculosis in pregnancy was discussed. Except for the taking of heart tones, I am convinced that a stethoscope in the hands of an obstetrician is a dangerous weapon. Many of the men at the confer-

ence still believed that most cases of tuberculosis could be diagnosed by physical examination alone, no matter what the stage of the disease. I can still recall my experiences with the routine re-examinations of patients as an intern on the tuberculosis service at Cook County Hospital. The majority of these patients had been in the institution for many months with moderately advanced and far advanced pulmonary lesions. Month after month the interns who preceded me had all found and recorded similar abnormal physical findings which were consistent with the x-ray films. But when I examined the same patients, much to my chagrin I was able to elicit few or no abnormal findings despite x-ray evidences of extensive disease. In an attempt to conceal what I thought was lack of skill on my part and to show that I was as competent an examiner as the others, I would write on the histories the same physical findings apparently found by my predecessors. Of course all of us here realize that all too frequently advanced pulmonary disease may occur in individuals presenting few or no abnormal physical findings but for some reason this important fact is not stressed by the teachers in the medical schools. The students, therefore, become confused when the physical findings fail to conform to the lesions seen on the x-rays.

I think it would be advantageous to ask Dr. Peck about the program for teaching tuberculosis which he has initiated at Oakdale where senior medical students receive a two weeks' course. I have talked with some of these students and they have informed me that they consider this short course to be of more practical value than many other and longer courses which they have taken during their four years of medical school. This is because these students have an opportunity not only to acquire some knowledge of abnormal physical findings, but also, and of equal importance, to learn the limitations of auscultation and percussion. In addition, the students themselves soon realize that a sound training in the fundamentals of pulmonary tuberculosis provides an excellent foundation for the study of all chest diseases.

I am sorry to have taken up so much time but I feel very strongly about the whole problem of tuberculosis teaching in the medical schools.

Chairman Hayes: Thank you, Doctor. I assure you that you hit a chord there to which we are all very responsive when you spoke about the internists. Dr. Peck, would you like to speak for a few moments and tell us about what you are doing at Iowa University?

Dr. John H. Peck, Oakdale, Iowa: In our rather extensive experience with undergraduate teaching, we have discovered that the average medical student has acquired numerous misconceptions from various departments in the medical school regarding tuberculosis as a clinical entity. When senior students come to our sanatorium for a two weeks' clinical clerkship, we find it necessary to review their fundamental knowledge of tuberculosis and assist them in correcting this misinformation. Doctor Ornstein has apparently had the same experience.

The students are in residence at the sanatorium a total of eighty or ninety hours, thus presenting an unusual opportunity for intensive instruction in small groups in the class room, in addition to demonstrations on the wards and in the laboratories. During afternoon rest hours, when we insist that the patients not be disturbed, is a fine time to use for didactic teaching. We aim to impress students with the conception that tuberculosis is a disease with complex manifestations and variations, and apparently they obtain an entirely new and rational viewpoint, leading to a better understanding of the disease, particularly the pulmonary type.

We thus are able to train students to attempt to correlate all the evidence obtainable by themselves and from the clinical records. Finally, they really appreciate the fact that tuberculosis is still a common disease; that frequently it is not easy to recognize and often difficult to treat. It seems to me that we are attaining reasonable success in our program of undergraduate instruction.

Chairman Hayes: Thank you, Dr. Peck. We have a little time remaining, and I should like to hear from some of the rest of you.

Dr. Maurice Kovnat, Staten Island, New York: As a body representing the important specialty of chest diseases, the College should formulate its program of medical school education to include all pulmonary diseases and not limit itself to tuberculosis. It should specifically enumerate the schedule for the teaching of these subjects in the medical

school curriculum. Many of them, though very important, are at present only glossed over; some of them, the medical students do not even hear mentioned. It is our duty to see that they are all given their rightful place in the teaching of medicine. No other agencies specifically concern themselves about this. We are the guardians of these students. To list only a few, pulmonary neoplasm, fungus pulmonary diseases, bronchiectasis, empyemata, pulmonary infarction, pulmonary abscess, acute respiratory infections, bronchial stenosis, bronchial foreign bodies, pulmonary circulatory derangements, cystic diseases, pneumoconiosis, emphysema, atelectasis diseases of the mediastinum and pleura, etc., etc.

As regards tuberculosis, any program the College sponsors should be based on the well established principles that:

1) The tuberculosis control problem will only be solved when (a) the open case is discovered and isolated, and/or converted to a closed case, and (b) the early case is discovered and adequately treated to prevent its becoming an open case.

2) The general practitioner is the keystone in the problem of tuberculosis control.

Based on these principles, the aim of any program the Council formulates should be to create a constant awareness on the part of the medical student just as soon as he assumes the responsible role of practitioner, to the possible existence of the disease of tuberculosis. No amount of time spent in learning tuberculosis in medical school can make a specialist or even an adequate healer of tuberculosis of the medical student. On the other hand, only a relatively short period of intensive, practical, close clinical contact with all the aspects of the disease, given late in his medical course, such as living in a tuberculosis hospital or sanatorium, will be necessary to create this attitude of awareness to the disease on the part of the student. When he becomes a practitioner, he will have developed a proper respect for this dreaded disease. With the aid of the specialist, without whose help he can never hope adequately to master the disease, any more than a deckhand can sail a ship through treacherous waters, he will ultimately conquer the *disease tuberculosis*.

In summary, the College should sponsor a medical school program to include all pulmonary diseases. As regards tuberculosis, short practical courses in a hospital or sanatorium, directed to the senior students that would create a constant awareness of the disease, are preferable to detailed didactic courses or lectures. They should be properly prepared to detect tuberculosis and other chronic diseases of the chest when they go out into private practice.

Dr. Arthur Q. Penta, Schenectady, New York: The American College of Chest Physicians should be congratulated for establishing this highly important Council on medical school education. Dr. Edward W. Hayes and his co-workers deserve much credit for the splendid work that they have done. From my observation during the past ten years, it is with regret when I tell you that a large measure of the success in the fight against tuberculosis has not been due to the activity and leadership of the medical profession, but rather to the many campaigns sponsored by various civic organizations. In part, this situation has been brought about by inadequate emphasis and a lack of interest in the teaching of tuberculosis in our medical schools. There are many men today in the field of general medicine who do not realize their responsibility to the community in the management of patients suspected of being tuberculous, nor do they fully realize the potential danger to the community which may result from the neglectful management of chronic open cases of tuberculosis.

At Temple University Medical School, under the able teaching of Dr. A. J. Cohen, the students are given a thorough course in all phases of tuberculosis. Several years ago, the progressive dean of the medical school, Dr. W. N. Parkinson, realizing the importance and the difficulty so often encountered in the differential diagnosis of chronic pulmonary diseases, instituted a short course on the mycotic and chronic bacterial pulmonary infections to be given in conjunction with the course in tuberculosis. Today, the graduates of Temple, although tuberculosis conscious, realize the close resemblance of this type of infection with that of other pulmonary conditions and have been taught not to delay in carrying out diagnostic procedures extremely essential in establishing a definite diagnosis.

Previous speakers have already emphasized

the need of competent teachers to conduct the teaching of tuberculosis in our medical schools. This is a very important point and one in which the College, through this excellent Council, should contact the deans of the medical schools and offer suggestions regarding the proper method of teaching this very important subject.

Mr. Chairman, I wish to thank you for the courtesy extended to me to take part in this discussion.

Chairman Hayes: Thank you, Dr. Penta. Our time is up, unless someone has something special to say.

As I said a little while ago, our Council was very much encouraged by the fact that Dr. Ralph Matson asked for our schedule even before it was published. We have been further encouraged by a number of other schools writing in during the past year and asking for the schedule, and assuring us that they were desirous of putting it into operation, as far as possible, in their institutions.

We have had another very encouraging move. As I told you last night, as Chairman of this Council, I have been asked to go to Richmond, Virginia, in October to talk at the Annual Meeting of the Association of Medical Colleges on the subject of teaching tuberculosis. The Council is very happy about this, because we feel that it is a step in the advancement of this program.

I wish that you people would think about this, and send me any suggestions which you may have that might be incorporated into the talk to the medical deans at their Annual Meeting in Richmond.

If there is nothing else, I want to express my appreciation to the men who talked and to all of you who have come here today. Thank you very much.

Adjourned at two-thirty p. m.

Organization News

COUNCIL ON UNDERGRADUATE MEDICAL EDUCATION

Dr. E. W. Hayes, Monrovia, California, Chairman of the Council of Undergraduate Medical Education of the American College of Chest Physicians, has recently mailed letters to the Deans and Heads of Departments of Medicine in each of the accredited medical schools in this country and Canada, as well as to the Governors, Regents and officers of the state and district Chapters of the College, in connection with a concerted campaign to improve the teaching of tuberculosis and other diseases of the chest in the medical schools.

The July issue of the Journal of the Association of American Medical Colleges published an address made by Dr. Hayes entitled "The Teaching of Tuberculosis" which he presented before the Fifty-Second Annual Meeting of the Association of American Medical Colleges at Richmond, Virginia, October 27-29, 1941. Reprints of this talk may be obtained by writing to the Executive Offices of the College at Chicago.

Dr. W. W. Chrisman, Macon, Georgia, a Fellow of the College, was elected president of the Eighth District Medical Society of Georgia. Dr. Chrisman was also appointed as a member of the Industrial Health Committee of the State Medical Society.

Dr. Carl C. Aven, Atlanta, Georgia, a Fellow of the College, was named Chairman of the Tuberculosis Committee and Chairman of the Committee on Revision of Pharmacopeia of the Georgia State Medical Society.

Dr. J. Cox Wall, Eastman, Georgia, a Fellow of the College, was elected as Vice-Councilor for the Third District of the Georgia State Medical Society. He was also appointed as Fraternal Delegate to the South Carolina State Medical Society.

Dr. J. C. Metts, Savannah, Georgia, a Fellow of the College, is serving as a member of the State Board of Health for the First District.

Dr. Carl O. Schaeffer, Racine, Wisconsin, Governor of the College for Wisconsin, read a paper before a special meeting of the Racine County Medical Society held at Sunny Rest Sanatorium on June 17th. Dr. Schaeffer spoke on "Artificial Pneumothorax at Sunny Rest."

Dr. W. P. Harbin, Jr., Rome, Georgia, a Fellow of the College, was appointed a member of the Committee for the Abner Wellborn Calhoun Lectureship of the Georgia Medical Society. He was also appointed as a member of the State Board of Health for the Seventh District.

DR. STUBBS HONORED

Dr. Frederick D. Stubbs, Philadelphia, Pennsylvania, a Fellow of the College, delivered the Third Annual Oration on Surgery before the Annual Meeting of the National Medical Association held at Cleveland, Ohio, August 17-21. Dr. Stubbs spoke on "Fundamental Physiological Concepts Underlying Major Surgery of the Chest."

Dr. Karl Pfeutze, Cannon Falls, Minnesota, a Fellow of the College, discussed "The Importance of Early Diagnosis and Treatment of Tuberculosis" before a meeting of the Rochester Kiwanis Club, Rochester, Minnesota.

Dr. W. E. Overcash, formerly of Southern Pines, North Carolina, a Fellow of the College, has opened offices in Roanoke, Virginia.

Dr. John S. Packard, Allenwood, Pennsylvania, a Fellow of the College, has been elected as President of the Montour County Medical Society.

Dr. Oren A. Beatty, Glasgow, Kentucky, a Fellow of the College, has accepted the appointment as medical superintendent of the Richland County Tuberculosis Sanatorium, Mansfield, Ohio.

Dr. F. H. Alley, Oakville, Tennessee, an Associate Member of the College, is at present located at the Victor C. Vaughn House, Ann Arbor, Michigan.

IN MEMORIUM

It now becomes our sad commitment to pause in solemn reverence in the observance of those of our members who have departed this life during the past year. May their deeds and accomplishments stand firmly emblazoned upon the rustless shields of service; and may their souls rest in peace within the sacred walls of Valhalla. Sharply chiseled into those ageless stone slabs of posterity, we find the names of:

Dr. S. P. Bittner, Glendale, California
Dr. Warren C. Breidenbach, Dayton, Ohio
Dr. Seymour Cohan, Chicago, Illinois
Dr. Charles DeWitt Colby, Asheville, N. C.
Dr. Charles A. Dukes, Oakland, California
Dr. Andrew Peters, Springfield, Mass.
Dr. LeRoy S. Peters, Albuquerque, N. M.
Dr. William J. Ryan, Pomona, New York
Dr. Leon Shulman, Los Angeles, California

PENNSYLVANIA CHAPTER TO MEET

The Pennsylvania Chapter of the American College of Chest Physicians will hold their annual meeting at Pittsburgh, Pennsylvania, on Sunday and Monday, October 4 and 5. The annual banquet will be held Sunday evening, October 4, and the scientific program will be presented Monday morning, October 5.

An interesting program has been prepared for this meeting and all members of the College in Pennsylvania and in the surrounding states are invited to attend this meeting. For reservations and other information pertaining to the meeting, kindly communicate with Dr. Edward Lebovitz, Secretary-Treasurer, Pennsylvania Chapter, 412 Jenkins Building, Pittsburgh, Pennsylvania.

ERRATUM

In the paper entitled "The Diagnosis and Treatment of Chronic Perennial Asthmatics" by Drs. Alexander, Julian A., and Beatrice E. Sterling, Philadelphia, Pennsylvania, published in Volume VIII, No. 7, July, 1942, issue of the journal, page 202, (P. D. Co.) should be placed after "(b) stock special catarrhal vaccine." This was placed in error after "(c) dust extract from specific environment."—*Ed.*

Dr. Frank Seligson, Glencliff, New Hampshire, a Fellow of the College, has accepted a position as resident physician at the Edward Sanatorium, Naperville, Illinois.

New Members Admitted to the American College of Chest Physicians Since the Publication of the 1941 Pneumothorax Directory

FELLOWS

Amaral, Francis M., Point Loma, California
August, Myron, Cleveland, Ohio
Aycock, George F., Denver, Colorado
Banquer, Jacob E., Boston, Massachusetts
Barnwell, John D., Honolulu, Hawaii
Bell, Robert G., Ottawa, Illinois
Belmont, M., Youngstown, Ohio
Benedict, Mitchell M., Yonkers, New York
Beringer, Lester E., Camp Claiborne, Louisiana
Blum, Milton, Jersey City, New Jersey
Boots, Edmund C., Pittsburgh, Pennsylvania
Borshaw, Hyman, Jersey City, New Jersey
Bortone, Frank, Jersey City, New Jersey
Bowers, Berna T., Panama Canal Zone
Brachman, David S., Detroit, Michigan
Brahdy, Leopold, New York, New York
Brock, Benjamin L., Waverly Hills, Kentucky
Brownstone, Sidney, Clear Lake, Iowa
Cahill, John D., Bronx, New York
Caplovitz, Harry, Houston, Texas
Castellano, Martin, Verona, New Jersey
Chadwick, Leon A., Middle Grove, New York
Cherry, Homer H., Patterson, New Jersey
Chester, William P., Detroit, Michigan
Christiansen, James N., Cincinnati, Ohio
Clarke, Norman E., Detroit, Michigan
Cooney, James P., Ancon, Canal Zone
Cox, Seth L., Seattle, Washington
Crawford, Paul M., West Point, New York
Crawford, William G., Terre Haute, Indiana
Curtis, George M., Columbus, Ohio
Davignon, Alvah R., Albany, New York
Dayton, Theodore R., Wallingford, Connecticut
de Savitsch, Eugene, Washington, D. C.
Dimon, James W. W., Utica, New York
Duncan, Robert E., Washington, D. C.
Dunham, Royal W., Ottawa, Illinois
Farinas, Pedro L., Havana, Cuba
Fink, Ira, New York, New York
Foreman, Walter A., Brookville, Indiana
Forsee, James H., Washington, D. C.
Foster, John V., Jr., Harrisburg, Pennsylvania
Foucar, Frederick H., New York, New York
Franklin, Daniel, Fort Knox, Kentucky
Fredd, Harry, Brooklyn, New York
Freer, Arden, Washington, D. C.
Garcia, David E., Hato-Rey, Puerto Rico
Garcia-Rosell, Ovidio, Lima, Peru, S. A.
Gaynor, John S., Wheeling, West Virginia
Gelenger, Stephen M., Flint, Michigan
Godreau, Miguel F., Ponce, Puerto Rico
Golinvaux, Cletus J., Monroe, Michigan
Goodrich, Benjamin E., Detroit, Michigan
Gordon, Douglas R., Newburgh, New York
Gorlin, Philip S., Richmond Hill, New York
Gould, Arthur A., Los Angeles, California
Grady, Henry W., Fort Benning, Georgia
Greene, Norbert S., Brecksville, Ohio
Grow, John B., Denver, Colorado
Hainlen, Edgar W., Mt. Morris, New York
Hardaway, Robert M., Fort Bliss, Texas
Harrison, Harlon W., Shreveport, Louisiana
Hart, John C., Pearl Harbor, Hawaii
Hastings, De Forest R., Minneapolis, Minnesota
Heaton, Thomas G., Halifax, N. S., Canada
Hellweg, Charles E., Chandler, Arizona
Heinrich, J. Fuhrman, New York, New York
Hellstrom, Lillian H., New York, New York
Hochberg, Lew A., Brooklyn, New York
Holcomb, Frederick W., Kingston, New York
Holmes, Arthur E., Lancaster, Pennsylvania
Howes, Willard B., Detroit, Michigan
Hurst, Allan, New York, New York
Iwanga, Barney N., Honolulu, Hawaii
Jacobson, Joseph J., Kingston, New York
Johnson, Hollis E., Nashville, Tennessee
Kanable, Holcombe R., Basin, Wyoming
Kastenbaum, Charles C., New York, New York
Keller, Paul E., Fort Douglas, Utah
Kelly, Virgil L., Beckley, West Virginia
Kenler, Maurice D., New Bedford, Massachusetts
Kiessling, Charles E., Newark, New Jersey
Kilpatrick, Elmer M., Columbus, Ohio
Kinsella, Thomas J., Minneapolis, Minnesota
Kinsey, Harold I., Toronto, Ontario, Canada
Klupt, Robert L., Brooklyn, New York
Kohl, Harold W., Tucson, Arizona
Kress, Milton B., Towson, Maryland
Laney, Ronald L., Marionville, Missouri
Lang, John G., New York, New York
Larson, Swen L., Elmira, New York
Ledbetter, Abbe A., Houston, Texas
Levin, Oscar S., Denver, Colorado
Lichtenberg, Walter, Fort Niagara, New York
Lingenfelter, Paul B., Clinton, Oklahoma
Liston, David E., Washington, D. C.
Loesch, John, Oneonta, New York
Lustok, Mischa J., El Paso, Texas
Lyght, Charles E., Northfield, Minnesota
MacInnis, Donald F., Pontiac, Michigan
Marcotte, Oliver, Detroit, Michigan
Marietta, Shelley U., Washington, D. C.
Mastellari, Amadeo V., Panama City, Rep. of Panama
Matturi, Dominick A., Jersey City, New Jersey
McClellan, Gustave L., Detroit, Michigan
McHugh, Michael J., Weston, Ontario, Canada
McSween, John C., Pensacola, Florida
Mehmert, Henry E., Chicago, Illinois
Miller, Arthur F., Kentville Nova Scotia, Canada
Moore, Clarence E., Harrisburgh, Pennsylvania
Nimitz, Herman J., Cincinnati, Ohio
Nojima, Kimi, Honolulu, Hawaii
Passalacqua, Luis A., Ponce, Puerto Rico
Pirkle, Hubert B., Rockville, Indiana
Pollard, Albert J., Harlingen, Texas
Pollock, William C., Denver, Colorado
Pou, Jaime F., Santurce, Puerto Rico
Pratt, Lawrence A., Atlanta, Georgia
Ramsay, Allan B., Springfield, Missouri
Reed, William A., Burton, Ohio
Rest, Arthur, Spivak, Colorado
Ricen, Edgar, Washington, D. C.
Ringo, Hugh F., Montreal, Wisconsin
Risch, Otto C., New York, New York
Roberto, Romeo, Yonkers, New York
Roberts, Edwin H., Camp Forrest, Tennessee
Rodgers, William H., Philadelphia, Pa.
Rosen, Charles S., St. Louis, Missouri
Rosenbaum, Louis, New York, New York
Rosenblatt, Milton M., New York, New York
Samson, Paul C., Santa Barbara, California
Sayago, Gumersindo, Cordoba, Argentina, S. A.
Schrire, Theodore, Capetown, South Africa
Schupmann, Martin A., Chicago, Illinois
Seelig, Charles A., New York, New York
Serra, Lawrence M., Baltimore, Maryland
Shaffer, Stanley N., Forest Hills, New York
Smith, Howard E., Austin, Texas
Smith, Leslie B., Weatherford, Texas
Smith, Wiley R., Knoxville, Tennessee
Spalding, William C., Fort Rosecrans, California
Sparer, Phineas J., Washington, D. C.
Speidel, Glenn P., Providence, Rhode Island
Stelman, Henry H., Buffalo, New York
Tempel, Carl W., Washington, D. C.
Thomas, Clarence S., Nashville, Tennessee
Thompson, Samuel A., New York, New York

Thompson, William L., Washington, D. C.
Vaccarezza, Oscar A., Buenos Aires, Argentina, S. A.
Vaccarezza, Raul F., Buenos Aires, Argentina, S. A.
Vaccarezza, Rodolfo A., Buenos Aires, Arg., S. A.
Van Deventer, William C., Long Beach, California
Wakeley, William E., East Orange, New Jersey
Waldron, George W., Houston, Texas
Wanninger, Horace, Richmond, Indiana
Watson, Allan R., Eureka, California
Wheeling, William S., Windber, Pennsylvania
Whiteman, Neville C., New York, New York
Wittich, Frederick W., Minneapolis, Minnesota
Wolf, John G., Pueblo, Colorado
Woodson, Turner A., Waverly Hills, Kentucky
Young, Charles T., Honolulu, Hawaii
Zizmor, Judah, New York, New York

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Ackerman, Frederick F., Fort Douglas, Utah
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Beelman, Floyd C., Topeka, Kansas
Beloff, Harry, Philadelphia, Pennsylvania
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Borchardt, Paul R., New York, New York
Bowers, George S., Denver, Colorado
Brotman, David M., Chicago, Illinois
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Bruhl, Charles K., St. Louis, Missouri
Caldwell, David M., Pittsburgh, Pennsylvania
Campos, Teodosio V., Havana, Cuba
Carter, Arthur C., South Dartmouth, Mass.
Centrangolo, Antonio A., Buenos Aires, Arg., S. A.
Challen, Alice A., Buffalo, New York
Chang, M. Leon, Hilo, Hawaii
Chernoff, Arthur H., Camp Edwards, Mass.
Chett, Nicholas J., Shoemakersville, Pa.
Childs, Edgar S., Honolulu, Hawaii
Cohen, Samuel C., Milton, Mass.
Cohen, Seymour J., Chicago, Illinois
Combs, Stuart R., Terre Haute, Indiana
Conlogue, Everett F., Oakville, Tennessee
Cooper, Franklin B., Oakmont, Pennsylvania
Cooper, James R., Richmond, Indiana
Davis, Paul V., Bridgton, Maine
de Bustamante, Orifilio Suarez, Havana, Cuba
de Guevera, Alberto Ladron, Guadalajara, Jalisco, Mexico
del Arco, J. Gonzalo Freile Nunez, Guayaquil, Ecuador, S. A.
de Lorimer, Alfred A., Washington, D. C.
Diamond, Sidney, Jamaica, New York
Donaldson, James M. Jr., Dallas, Texas
Dorner, Ralph A., Iowa City, Iowa
Ellmers, Basil J., New Milford, New Jersey
Evander, Leonard C., Lockport, New York
Fitzgerald, Joseph M., New York, New York
Friedman Bernard, Koch, Missouri
Frohman, I. Phillips, Washington, D. C.
Gerson, Charles E., Fort Leonard Wood, Missouri
Gonzalo, Pedro H., Havana, Cuba
Gordon, Nathan G., Fort Barrancas, Florida
Gray, William P., Batesville, Arkansas
Hanahan, Ralph B., Camp Stewart, Georgia
Harrat, Frank T. Jr., Hempstead, New York
Harrington, Arthur J., Baldwin, Long Island, N. Y.
Harrington, Peter F., Providence, Rhode Island
Hiebert, Homer L., Ah-Gwah-Ching, Minnesota
Hodil, Elmer R., Allenwood, Pennsylvania
Idstrom, Linneus G., Ah-Gwah-Ching, Minnesota
Iturbide, Enrique C., Guatemala City, Rep. of Guatemala, Central America
Jones, Thomas R., Houston, Texas
Jurgens, George H., Wauwatosa, Wisconsin
Kaplan, Albert, St. Louis, Missouri
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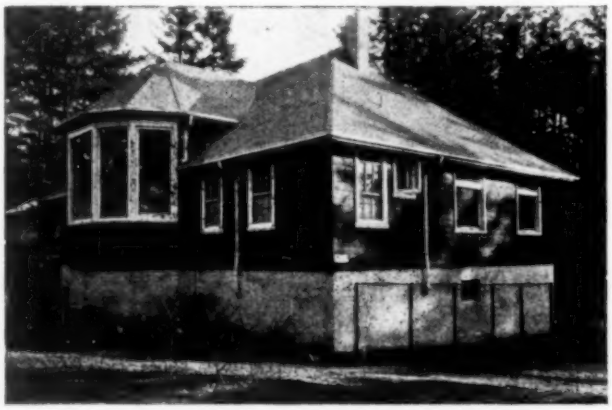

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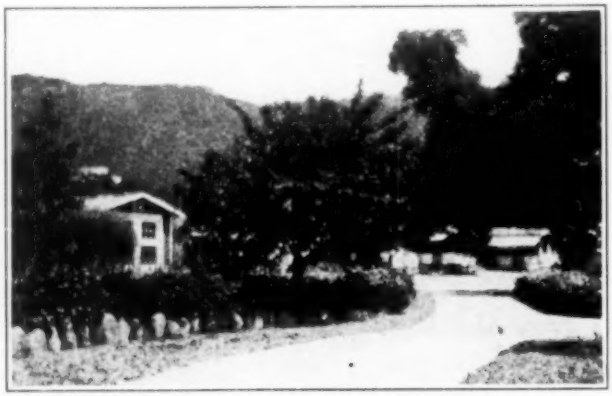

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